Lecture 1st Nov. 8th 1830 — Monday

Inflammation is an abstract term designating a collection of symptoms. ~~[illegible]~~ It was restricted by Celsus &c to these four leading symptoms — "Calor dolor, tumour, rubor" — but has since been employed by many surgeons more indefinitely to designate almost every kind of morbid action.

This term was never intended to designate the cause, or the essential nature of the disease, but only to denote the fact that a certain train of symptoms exists in a given case. It is like all other abstract terms, & should be understood in the same way as Newton intended to be understood by his use of the term gravitation. Many surgeons, however, have misconceived the meaning of this word & have bewildered themselves with vain enquiries into the essential nature of inflammation, — imitating the metaphysical disquisitions of the old school-men respecting the occult causes of things.

Fever is another abstract term which is employed to designate ~~a class of~~ diseases of the whole system ~~or constitution~~, in the same manner that Inflammation is employed to designate the symptoms of disease in a part of the system. Inflammation is the local ~~disease~~ — Fever is the constitutional disease which results from the influence of injurious causes acting upon the system.

By the term Irritation ~~is another term employed much by surgeons~~ is meant every inordinate or unnatural effect resulting from the action of exciting causes upon the system or parts of the system. A part is said to be irritable or in a state of irritability, when the stimuli to which [illegible] accustomed in health produce morbid [illegible] sparms

we must be careful not to confound these terms with the physiological acceptation of them. Haller & other writers employ them to designate the power which the muscles possess of being thrown into action by stimuli (is locally applied to them.)

A part may be in a state of irritation and still not be inflamed; but inflammation cannot exist without some degree of irritation. In inflammation there is something superadded, therefore, to mere irritation. I would say that irritation is confined to the nerves, while inflammation involves the bloodvessels of the affected part.

Irritation is both local & constitutional. — the first is analogous to inflammation, the 2d to fever.

Injuries affect the system differently in cases of individuals possessing different constitutions.

In a healthy temperament when there is a perfect equilibrium in all the functions there will be less immediate disturbance & a more salutary train of consequences during the subsequent efforts at restoration.

In a sanguine temperament there will be more vascular excitement & higher inflammation.

In a nervous temperament more irritation & irregular excitement.

In a bilious temperament more depression, & more painful efforts at reparation. &c. &c. —

But the principal difference in the immediate effect of injuries arises from the degrees of violence with which the body has been afflicted. Slight wounds & injuries disturb the constitution but very little if at

Constitutional Shock & Irritation.

The majority of those who die from the effects of burns, injuries, & operations do not survive long enough for either fever or inflammation to be set up: — they are destroyed, therefore, either by the immediate impression of the injury upon the system (the shock) or from the subsequent irritation.

"In fatal cases of "Burn" the state of prostration is consentaneous with the infliction of the injury."

In the fatal cases of complicated injury (as fractures Operations for recent injuries &c) there is some variety as regards the accession of the symptoms of prostration. Four days is the extreme period to which life is usually prolonged. The result in such cases is altogether independent of inflammation.

Inflammation ensuing upon injuries & operations presents these symptoms setting in at a variable but considerably later period — the inflammation standing in the relation of exciting cause.

In Hemorrhage & colliquative suppuration the symptoms of prostration take a measure strictly according to the exciting cause — more rabid if from hemorrhage or its consequences, erysipelas or gangrene; slower if from wasting suppuration.

Mr. Travers gives the following epitome of his two forms of prostration,

1.st Prostration pure. Prostration without reaction is marked by universal pallor & contraction of surface, shuddering, very small & rapid pulse, astonishment of the mental faculties, generally a dilated pupil, shortened respiration, dryness of the tongue & fauces, indistinctness, and at length the cessation of the pulse at the wrist, stupor, oppressed & noisy respiration, coldness of the feet & hands, involuntary twitchings, relaxation of the sphincters, confirmed insensibility, stertor, & death.

2.d Pr. mixed. Prostration with excitement is marked by the signs of languor & stupor or drowsiness in the commencement, to which after a variable interval succeed rigor, precordial anxiety, restlessness, jactitation; a rapid & bounding pulse, oppressed respiration with frequent attempts to sigh, flushed countenance, contracted pupil, dry heat of the skin, parching thirst, rejection of liquids taken into the stomach, incoherence & wildness of expression, sometimes amounting to fierce delirium. This state is succeeded by exhaustion marked by somnolency, a profuse chilly & clammy sweat, a haggard & livid aspect, a small irregular or fluttering pulse, innumerably rapid, panting respiration, passive convulsions, hiccup, and subsultus, the stupor & stertor of apoplexy, and death.

Sometimes there follows a state of continued languor & faintness, with coldness & sleepiness verging on deliquium, the pulse & breathing almost imperceptible terminated by convulsion.
At other times Mr. T. has seen alternating with a state of coma, convulsive paroxysms, in which the features undergo the contortion & fixedness of epilepsy, vehement maniacal cravings, & impotent attempts to rise from bed, with an incessant muttering & repetition of broken phrases relating to the occupation of the individual & terminating in exhaustion.

But these symptoms of prostration do not always terminate fatally. They may gradually give place to a partial & defective reaction, protracting the life, but fatally impairing the prospect of restoration, which remains doubtful for several days in succession: — or, on the contrary, an efficient & healthy degree of reaction may be quickly established, consequent upon symptoms threatening the most unfavorable issue.

I have been in the habit of dividing the different cases of Shocks which I have seen under the following three heads

1st Overwhelming Shock — fatal, or very slowly recovered from by an imperfect & feeble re-action.

2d. Temporary Shock, followed by speedy re-action

3d. Insidious Shock — — — — — — — — —

Some patients after exceedingly severe injuries complain of no pain, or irritation, exhibit no disturbance of pulse, stomach, or respiration, but languish along from 24 to 36 or even 50 or 60 hours and then fall into complete prostration & spacelus.

e.g. Mrs. Silva at Hulmeville — with a bad compound dislocation of an ankle & fracture of the fibula. Her tongue continued clean, her pulse soft & natural, her sensibilities natural, her mind undisturbed, bowels & kidnies free, skin moist & cool, leg & foot easy & comfortable, and yet the limb mortified on the 4th day & she expired on the 6th. Her pulse became very rapid & her cheeks hot & flushed before death. She also began to shew a countenance of surprise & alarm on waking from her short slumbers the day before she died.

This presents a fair case of insidious shock, and it proved so to the attendants, for they suspected nothing wrong until the limb began to mortify.

Mr. Scovill's case was another. He jumped out of the 3d story window of Congress Hall & met with the same accident. He immediately after walked about on the broken & everted foot without experiencing any pain or flinching. Under active stimuli he struggled along several weeks, & finally recovered.

Irritation, constitutional & local.

Differences between constitutional, & fever and between local irritation & inflammation.

In irritation there is no regular or continued train of actions. "It is every thing by turns & nothing long."

— Severer wounds are attended with some degree of prostration or faintness (& that too independent of all loss of blood) from which the patient will very soon recover. The pulse will be indistinct & tremulous at first, the skin cold, the sensibilities enfeebled, & the mind clouded, and these symptoms may continue for a considerable period of time until the reaction takes place. The pulse then rises to its natural standard, the skin become warm & flushed, & the sensibilities are restored, and the patient remains in a state of health, comparatively speaking, until the fever of inflammation supervenes.

This is a fair illustration of what I would call the Temporary Shock.

But very severe injuries sometimes destroy the powers of life immediately, or at least so far overcome them as to sink the patient into an exceedingly precarious & dangerous state. This I call the Overwhelming Shock. I beg you to observe that this may take place without any injury upon the head or any other vital organ. It often occurs from the passage of a heavy body over one of the extremities. When this proves speedily fatal & the patient evinces no symptom of reaction it is a pure case of overwhelming shock. But when reaction does eventually take place it approaches to the nature of a temporary shock. These two kinds of shock verge into each other by undiscernable shades; so that in a great number of cases you will have some which you will find it difficult to decipher under one or the other head.

But there is still another constitutional effect resulting immediately from severe injuries to which I would particularly call your attention. It is not uncommon for a compound dislocation of the ankle joint to be followed by a period of apparent tranquillity & entire absence of irritation in all parts of the body, & still for a sudden sinking to take place on the third or fourth day which will terminate in mortification or death. This I call the Insidious Shock.

Very few appear to be aware of this case, & most physicians predict favourably until the fatal change occurs. The pulse remains natural, the tongue moist soft & clean; the skin cool & perspiring, and the mind tranquil. This is very like the most fatal cases of yellow fever described by Rush. The ship has foundered on a rock or shoal in the other kinds of shock; but in this the cable is parted & the rudder lost. The first appearance of danger that is observed by most physicians is a treacherous or dissatisfied troubled & sullen countenance, and a hurried pulse. The strokes of the pulse are often 160 in a minute, open, full & thrilling like fine sand passing under the fingers. This is a fair sample of the soap bubble ~~pulse~~ or gaseous pulse. Partial sweats then breake out & the tongue will quiver, & the hands tremble. Subsultus tendinum supervenes, then wandering of the mind, feeble convulsions & death.

Besides these more immediate consequences of severe injuries there occur a variety of secondary symptoms in different cases which deserve our particular attention in this discussion. The first of

there is irritability of the stomach, which often attends the period of reaction from the temporary kind of shock. This is often salutary and is a favorable indication in most cases. But when it is excessive it must be checked by appropriate remedies.

The second of the secondary class of symptoms is delirium. When this immediately follows the injury it is very unfavorable, especially if it continue a length of time. But when it occurs subsequently to the reaction it is not of itself unfavorable — but merely so in connexion with the other symptoms. When the state of the system is remediable the delirium connected with it will be relieved also by remedial means — & vice versa.

Pain & Watchfulness — also occur very frequently — and are highly dangerous when they occur in a sinking state of the system. But they are remediable when they occur in connexion with a state of the system which is under the control of remedies.

Pain occurs at all times, except in the dangerous stages of shock, and is modified in its consequences by a great variety of circumstances. A moderate degree of pain is favorable, but very severe & protracted pain often proves fatal. —

Morbid vigilance is another occasional consequence of wounds, & becomes very injurious if protracted long. This depends altogether, however, upon its connexion with other symptoms.

Jaundice, Suppression of urine, & dyspnoea are very unfavorable symptoms in all cases, especially the two latter. —

The first indication for ~~treatment~~ which strikes the mind of most practitioners would seem to be the prevention of inflammation, ~~no~~ matter what may be the immediate result of the injury or the nature of the secondary symptoms. Bloodletting is resorted to in the prostrate & fainty condition of the system after almost all accidents and the vulgar always cry out for it on the spot.

The proper plan, however is, in all cases, to treat for the existing symptoms, and to let the powers of the system have an opportunity of developing themselves.

In the temporary shock it will not often be necessary to stimulate. Give the patient fresh air, carry into a ~~warm~~ room of a proper temperature & chafe his hands & feet, or embrocate the skin with hot spirits &c and in a few minutes reaction will occur. But do not mistake the excitement of reaction for inflammatory action. If it be excessive at first, it will soon subside of itself; at all events cool ablutions to the surface & cool drink will very soon subdue it.

In severe & overwhelming cases of shock it will be necessary to stimulate actively. Brandy toddy, or some other alcoholic mixture is best. External warmth & frictions are also excellent, but they must be laid aside as soon as reaction supervenes.

In the insidious shock we can do nothing — I have never ~~seen~~ any treatment serviceable —

The irritability of the stomach which often occurs at the moment of reaction is generally temporary & will require no treatment. The moment the contents are ejected the irritability ceases. But when the irritability is of longer duration remedy will be required.

In case it be accompanied with symptoms of bilia-tic derangement, or of foul contents an emetic dose of Ipec. followed by warm diluents will be proper.

If it be attended with tenderness of the epigastrium, or heat & pain there, leeches will do best, & they should often be followed by a blister.

In ordinary cases a sinapism on that region will do much good; & when the feet are cold the same application should be made at the ankles.

If there be heat on the surface cooling drinks in very small doses are proper — especially soda water, — and effervescing mixture. If on the contrary there be chilliness & a sense of coldness at the stomach cordial drinks will be best — such as clove tea, cinnamon tea, — brandy & water &c. Lime water & milk. &c. But the great secret is to give them in very small quantities.

When the irritability is extreme add opium &c. & when there is an indication of the secretions calomel & opium pills.

Pain is to be treated altogether according to the accompanying symptoms, as they exhibit the state of the system. When the pulse is excited, the skin hot, &c. depletion is the proper course; & Antimonials. Tartar emetic is the best of all anodynes in such cases.

When the skin is cool & perspiring, the pulse weak &c. the preparations of Opium are best & these should be chosen according to circumstances.

— Lymph are to be considered very much in the same light with pain — sometimes depletion & antiphlogistics; — at other times Opiates are best —

Inflammation generally occurs between 36 & 48 hours; and becomes more or less severe according to the severity of the injury & other circumstances.

If the injury be very slight, as a mere contusion, it is possible that a resolution of the inflammation may be effected in its commencement. Even in very slight cuts a reunion may be effected without any evident progress of inflammatory action — and this we call reunion by the first intention —

If the wound be a little more severe the inflammation cannot be thus checked, but passes on to effect an exhalation of the coagulating lymph of the blood into the cellular cavities upon the surfaces of the wound — and this is denominated adhesive inflammation, or the adhesive stage of inflam[n]. When the inflamm[n] proceeds no further it is said to terminate in adhesion. The deposition of lymph produces some degree of induration & tumefaction, & serves the purpose of circumscribing the disease. The cells of the cellular tissue being blocked up the infiltration of air & fluid is prevented & the stimulus of inspection is removed. That portion of the lymph which is deposited between the lips of a wound becomes the bond of union by first agglutinating the surfaces together, & afterwards becoming organized so as to allow of a communication of vessels & nerves between the opposed surfaces. — After the wound has become consolidated the lymph becomes absorbed & the induration disappears —

In still more severe wounds ulceration cannot be effected by this process, & the inflammation may, therefore, & heat keep on to a higher grade. The pain becomes more severe, & throbbing is complained of, chills & flushes alternately pervade the system & violent symptomatic fever results. The pulse varies between 90 & 112, & the secretions are generally suspended. In a short time pus begins to be discharged from the wound - which is often preceded by a bloody serous discharge. Pus is a secretion, not the result of putrefaction or erosion; & always relieves the inflammatory action. It is only when the secretion is confined that it fails of relieving the distressing sensations of the patient, and then the pains of ulceration supervene. If the pus be allowed to escape its secretion is always accompanied by granulation. except in the mucous membrane

Granulation is also a reaction & not a mere pullulation of cellular tissue as Bichat supposed. It is effected by the exhalation of small drops of coagulable lymph, which speedily become organized by the starting out of vessels into them. This can be often demonstrated by the appearance of ulcers. A pellicle of soft whitish substance (looking precisely like a flake of buffy coat from the top of a coagulum in a bowl) is often seen on the surface of an ulcer. When you pull it off it will be found to adhere at points into which the subjacent vessels have extended themselves. This is, therefore, a layer of coagulating lymph secreted over all the surface of the ulcer & imperfectly organized -

As soon as these granulations have formed a layer all over the surface they begin to contract towards the centre & thus close up the wound. This contraction is precisely like the contraction of a coagulum, or rather like the contraction of the muscles.

When the wounding thing fills up & cicatrization occurs over the surface

Authors describe various other terminations of inflammation, none of which however have for their object the restoration of wounds. — 1. the exhalation of serum only occurs in debilitated constitutions or in lax tissues & is a dropsical symptom. — 2. the hemorrhage is an accidental circumstance which operates precisely like local bloodletting. 3. Induration or schirrhus, is merely the result of adhesive inflammation remaining unabsorbed, and which is particularly apt to occur in the glands.

4 Mortification is also a termination of inflammation according to most writers — but it rather results from antecedent causes which the inflammation proves unable to counteract.

The inflammation of which all the above terminations are only so many stages is called Phlegmonic, or the healthy inf.n Phlegmonic from the former ideas of phlogiston the matter of fire; and healthy either because it occurs in healthy constitutions or has for its object the restoration of health.

But there are other kinds of inflammations which do not have this tendency to restore parts — they on the contrary tend to their destruction. Pathologists have therefore denominated them morbid inflammations. The first of these which I will mention is Erysipelas — so called on accounts of its tendency to extend over a large surface or to draw it into the disease. I divide this disease into three species. 1st simple, 2d phlegmonous; 3d oedematous.

VERTICAL FILE
McClellan, George